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# Evaluation pilot 2 digital seafarer certificates

Executed by Kiwa on behalf of the Ministry of Infrastructure and Water Management

Partner for Progress

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## Colophon

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# Summary

Following the positive outcomes of the first pilot, the Ministry of Infrastructure and Water Management (I&W) and the Human Environment and Transport Inspectorate (ILT) decided to continue exploring the potential of digital certificates in the maritime sector. While the initial pilot confirmed many benefits, several questions remained unanswered, prompting the launch of a second pilot.

This second pilot, commissioned once again by I&W, ran for a period of three months and involved a broader group of stakeholders, including shipping companies, seafarers, and training institutes. Training institutes were added because this pilot focused on a wider range of documents than the Certificate of Competency, including the digitalization of Certificates of Proficiency. The aim was to further test the use of digital certificates in real-world conditions and to develop solutions for the challenges identified during the first pilot.

The context, goals, and motivations remained the same: to improve efficiency, reduce fraud, and enhance user experience through digitalization. However, the focus of this pilot shifted to more specific operational and compliance-related questions.
To guide this initiative, I&W and ILT formulated a set of objectives for this pilot:

1. **Design a process for direct issuance to Certificate Holders**:
    - Streamline the process to ensure certificates are issued directly to the seafarers.
2. **Make sure that the shipping companies are compliant when their seafarer use digital documents**:
    - Develop a method for securely transmitting relevant data to shipping companies.
    - Ensure certificates are accessible in a central place on a ship and recognizable for enforcement, in line with "*IMO Guidelines on the use of electronic certificates of seafarers*".
3. **Continue testing Digital certificate acceptance**:
    - Conduct further tests on the acceptance of digital certificates by foreign regulatory bodies.
    - Plan and execute national and international demos for verifiers.

The second pilot confirmed the feasibility of issuing digital Certificates of Competency (CoCs) and Certificates of Proficiency (CoPs) in real-world conditions. With an activation rate of 73%, most participants successfully received and used their digital certificates. Feedback from seafarers, shipping companies, and enforcement bodies was largely positive, highlighting the ease of use, improved accessibility, and potential for compliance. However, challenges remain in the retroactive digitalization of historical certificates and international recognition during inspections. The pilot also identified practical solutions for the issuance process, including direct delivery to seafarers, visibility of activation status, and integration with onboard systems. These insights are of great value for the next steps toward full digital implementation.

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# 1 Introduction

Building on the success of the first pilot, the Ministry of Infrastructure and Water Management (I&W) and the Human Environment and Transport Inspectorate (ILT have launched a second pilot to further explore the potential of digital certificates in the maritime sector. While the initial pilot demonstrated clear benefits—such as improved efficiency, reduced risk of forgery, and enhanced user experience—it also raised new questions and revealed areas requiring further investigation.

This second pilot, commissioned by I&W was conducted over a period of three months and involved a broader group of stakeholders, including shipping companies, seafarers, and training institutes. Training institutes were added because this pilot focused on a wider range of documents than the Certificate of Competency, including the digitalization of Certificates of Proficiency. The aim was to test digital certificates in more diverse operational contexts and to develop practical solutions for challenges identified during the first pilot.

The focus of this pilot shifted toward the implementation and compliance aspects of digital certification. One key area of exploration was how shipping companies can remain compliant when seafarers receive their certificates directly in digital form, rather than through the company as with physical documents. Another objective was to define a reliable process for certificate delivery, ensuring that seafarers receive their credentials securely and efficiently.

In addition to Certificates of Competency (CoCs), this pilot also examined the digitalization of Certificates of Proficiency (CoPs), responding to feedback from the first pilot that highlighted the need to digitize the full set of documents typically carried onboard.

Finally, the pilot addressed concerns related to Port State Control inspections. With certificates stored on personal mobile devices, inspectors may need to access documents directly from seafarers, which could lead to operational disruptions. The pilot explored whether a centralized solution—such as a secure platform for scanning and verifying digital certificates—could support smoother inspection procedures.

# 2 Pilot description

## 2.1 Purpose

In 2024, Kiwa Register conducted a pilot project for the digitization of crew documents. This pilot raised a few questions about the practical use for the shipping company's administration and for the captain on board that we aim to further investigate with this second pilot.

In recent years, the capabilities for digitally publishing personal documents, such as CoCs and CoPs, have significantly improved. The advantages of issuing digital documents include: (1) a reduced risk of forgeries, (2) decreased production of physical documents, (3) enhanced enforcement options, (4) an improved user experience and (5) a faster and more direct issuance process. In the 2024 pilot, we began issuing digital documents.

During this first pilot, participants provided excellent feedback and suggestions for improvements, ensuring that the digital certificates become even more practical and user-friendly in real-world applications. One of these feedback points was to ensure the shipping company compliance when using digital certificates. Another suggestion came from one of the participants. They proposed a process to digitize not only the certificate of competency, but all certificates that are now on board for a crewmember.

To move forward, we recommended allocating three months to further analyze the possibilities and define practical solutions. By following this approach, an even more effective and scalable solution that meets the needs of all stakeholders while ensuring compliance and usability in the long term can be delivered. This resulted in this second pilot. During this second pilot, we used the same setup and technique as mentioned in the description of the first pilot. Therefore, this information is not copied to this document.

The results of this second pilot will lead to a successful and usable implementation of digital crew documents for every stakeholder in 2026.

## 2.2 Documents in scope

Each shipping company provided 10 participants, with the Certificates of Competency (CoCs) of these participants included within the scope of the pilot. The Certificates of Proficiency (CoPs) covered in this pilot were:

- Certificate of Competency
- Basic Training and Refresher
- Advanced Firefighting and Refresher
- Proficiency in Survival Craft and Rescue Boats Other than Fast Rescue Boats
- Medical First Aid
- Medical Care Training
- Proficiency in Fast Rescue Boat and Refresher

## 2.3 Duration of the pilot project

The pilot project was officially kicked off on 15 April 2025. Although it was originally planned to run for three months, the pilot was extended by an additional two months, with the project concluding on 30 September 2025. The extension was necessary to allow sufficient time to process historical data, address unforeseen challenges in the handling of Certificates of Proficiency (CoPs), and ensure that all stakeholders,

including shipping companies and seafarers could fully engage with the pilot activities.

## 2.4 Adjustments in processes

No changes to the current process were foreseen for the shipping companies and training institutions that were invited to this pilot. The shipping company could continue to apply for documents as is, and also continued to receive the normal physical document. Kiwa ensured that the "beneficiary (seafarer)" received a digital Certificate of Competency and their Certificate of Proficiencies, alongside the physical documents. Because both a physical and digital document is provided during the pilot, it was ensured that no risks were introduced with regard to continuity.

## 2.5 Regulation

IMO

On 28 June 2023, the IMO published guidelines for the use of electronic certificates3. This guideline describes the requirements that must be met in order to issue and verify digital seafarer certificates. The main subjects are verification, security assurance, data form, physical location, privacy, features and electronic signatures. The pilot complies with these guidelines, so that if the government decides to include the technical platform (see technical details in the pilot description) of this pilot in the legal framework, it complies with Dutch law and (international) regulations.

EMSA

The Netherlands has been actively involved from the start in the EMSA (European Maritime Safety Agency) Digitalization Working Group, which preceded a tender process to draw up the outlines of an European electronic register. The starting point is a central hub where all issued digital documents are stored and made available to the relevant authorities. As a participant in this working group, the Netherlands has contributed valuable insights and feedback to help shape the scope and objectives of the initiative.

EMSA has expressed a particular interest in the results of the pilot project being conducted in the Netherlands. Given the relevance of this pilot to broader European efforts in maritime safety and digitalization, EMSA is monitoring its progress and outcomes. The findings from this pilot are expected to inform future initiatives and potentially set a precedent for similar projects across Europe.

To the extent possible, efforts have been made to align the objectives and technical requirements of the EMSA project with the Dutch pilot. This compatibility ensures that the outcomes of the pilot can contribute directly to the broader EMSA framework, maximizing the value and impact of both projects.

National level

The possibility for the digital issuance of certificates of competency and seafarers books has been incorporated into the legislation during the revision of the Dutch Seafarers Act, by I&W It is expected that a technical basis will have to be laid in legislation for the issuance of digital documents. This basis describes the technical specifications of the system as well the standards on which the digital document is provided. The legislation must be in line with the guidelines of IMO MSC.1/Circ.1665. This will be a topic of discussion with the government's legal department in the coming period.

# 3 Methodology

## 3.1 Design and participants

A group of shipping companies was selected to participate in the pilot project. The following companies were included:

- Wijnne & Barends
- Holland America Line
- Spliethoff
- Wagenborg Shipping
- MF Shipping Group
- Nederlandse Vissersbond
- Van Oord
- Rood Boven Groen

In addition, several training institutions were invited to participate in the project. During a meeting of the KNVR, a presentation was given on digital certificates in the maritime sector, during which the interest of training institutions in participating was explored. Three institutions expressed interest in participating. The training institutions that took part in the pilot where:

- RelyOn Nutec Netherlands
- STC Next.

## 3.2 Activation and Distribution Process

| Sort of certificate | Number of issued certificates | Number of activated certificates |
|---|---|---|
| Certificate of competency | 71 | 56 |
| Certificate of competency – fishery | 6 | 4 |
| Certificate of Proficiency (STCW) | 86 | 59 |
| Total | 163 | 119 |

Activation rate: 73%

## 3.3 Ongoing Evaluations and feedback

In the light of continuous improvement, several evaluation and feedback activities were organized throughout the pilot. With regard to the Certificates of Proficiency (CoPs), the pilot started with open discussions to digitalize the certificates. The training institutions provided Kiwa with sample certificates, and through several discussions these certificates were digitized. Feedback was collected repeatedly to verify that the information was displayed correctly in the app.

During the pilot, two structured feedback rounds were conducted with the participating shipping companies. In addition, three vessel visits were carried out on different ship types, which were a dredger, a fishing vessel, and a Holland America Line cruise ship. These visits offered valuable lessons learned and provided practical insights into how digital certificates are used in different contexts.

Further feedback was collected by email allowing participants, shipping companies and training institutions to share observations and suggestions. Finally, the pilot concluded with a closing feedback round, enabling all stakeholders to reflect on the outcomes and propose recommendations for future implementation.

## 3.4 Issuance process

Before starting the issuance process, it is important to note that this process was distinct from the regular certificate issuance. This separation ensured that day-to-day operations could continue without interruption.

At the start, each shipping company selected ten seafarers to participate during the pilot. Selection was based on practical considerations, such as their expected deployment on the same vessel in the coming months, their willingness to participate, and the fact that they had obtained relevant Certificates of Proficiency (CoPs) from one of the participating training institutions.

Certificates of Competency (CoCs) were manually issued by Kiwa. The participating seafarers received an activation code via email that allowed them to activate their digital certificate in the Kiwa eWallet app.

Similarly, CoPs were also manually issued by Kiwa DC. The process of issuing the CoP's began with the shipping companies providing an overview of which CoPs each seafarer had obtained and at which training institution. The training institutions were then requested to supply the corresponding data for those seafarers who had completed a specific CoP with them. With this data Kiwa issued the certificates. As a result, participants received an email containing an activation code to activate the certificate in the Kiwa eWallet.

This manual approach was chosen as it was the only feasible option within the scope of the pilot. The focus was therefore on participants who had obtained a CoP at one of the three training institutions, after which the corresponding CoC was also issued. Since no new issuances were included in the pilot, all data had to be entered retrospectively.

# 4 Results

During this pilot two ways of collecting feedback were used. Through direct conversations and through emails. Direct conversations were facilitated during feedback rounds held throughout the pilot with the shipping companies, focusing on the research questions. As the pilot was concluded, a final feedback round was conducted. In addition, participants were able to provide feedback by email at any point during the pilot.

## 4.1 Holder perspective

From the holder perspective, the feedback was largely positive. Users emphasized the ease of use of the app and the clarity of the issuance process. Only a small number of holders reported that they had missed the activation emails, which meant their certificates were not activated. This point will be discussed below, since the cause of this lies in the challenges of the issuance process.

The expansion of the number of available documents, so including the CoP's, was also well received. However, holders expressed the question of when all relevant documents would be fully digitalized.

During Port State Control inspections, two seafarers presented their digital certificates. In these cases, the eLicense itself was not checked. The inspections were conducted by Spain and Germany, and it is possible that reference to the to whom it may concern letter was not made during these inspections.

## 4.2 Shipping company perspective

From the perspective of the shipping companies, several points of attention were identified. It was considered important that if a certificate is issued only in digital form, it should also be made available as a PDF in the Kiwa Register portal to ensure that company records remain complete. Such functionality would also support sharing certificates with third parties beyond enforcement authorities, such as clients, classification societies, and agencies.

Shipping companies also proposed options for staying compliant and keeping their administration up to date. One idea was to enable seafarers to give consent for their certificate to be sent directly to the shipping company. Another option would be to allow seafarers to share a print or PDF version directly through the app's sharing functionality to the company.

In the context of reissuance (e.g. seafarer lost his phone), shipping companies emphasized that it should always be possible to have the seafarer carry out this process. In the current process with physical documents, both the shipping company and the seafarer can request a new document. With the digital version, the seafarer should still be able to do so, since he may change shipping companies over time.

Lastly, shipping companies indicate that activating a certificate should take place using the seafarer's email address, as provided by the shipping company. Several companies suggested that activation via a mobile phone number could also be useful. In addition it would be valuable for them to be able to see whether a certificate has been activated by the seafarer.

## 4.3 Enforcer perspective

From the perspective of enforcement and verification parties, several points were raised. Classification societies, including Bureau Veritas and Lloyd's Register,

emphasized the importance of having a QR code that allows certificates to be verified quickly and reliably.

Enforcers of Human Environment and Transport Inspectorate (ILT) were positive about the development of digital certificates and recognized the opportunities this transition offers. At the same time, the ILT noted that the international acceptance of digital certificates will require a considerable transition period. Many inspectors worldwide are still accustomed to traditional paper-based processes and may not easily adapt to digital alternatives. At this point digital certificates may not pass during a Port State Control due to this. While significant progress still needs to be made in raising awareness and recognition of digital certificates, the ILT expressed confidence in the potential of this digital transition.

## 4.4 Additional; issuer perspective

Certificates of Competency (CoCs) were generally straightforward to process, as demonstrated in the first pilot. During the pilot, no difficulties were experienced with processing these types of certificates. Certificates of Proficiency (CoPs), however, proved more challenging due to the need to consider historical records. Training institutes involved were required to retrieve information from up to seven different CoPs for a large number of participants.

In practice, it has proven difficult to retroactively digitalize large numbers of certificates due to technical limitations. Over time, changes in data structures, signatories, and formats have increased the complexity of the datasets. As a result, significant manual processing is required, which not only makes the process labor-intensive but also raises the risk of errors.

Overall, the pilot demonstrated that issuing CoPs in practice requires handling a large volume of historical data with varying values, which is a significant challenge. For future implementation, the focus should be on the issuance of new certificates instead of issuing existing ones.

# 5 Key insights and deliverables

## 5.1 Overview of deliverables

Before the start of this second pilot, the following deliverables were defined:

1. An adjusted process flow for requesting a digital seafarer document during application in order to directly send the activation code to the seafarer
2. A solution for the shipping companies to ensure they remain compliant with applicable laws and regulations with respect to administrating data about their employees (data sharing)
3. Create and test proposals for making digital seafarer documents accessible in a central place on a ship
4. An overview of all the feedback received from enforcers during the presentations

Key insights related to each of these deliverables will be discussed in this chapter.

## 5.2 Deliverable 1: Adjusted process flow for requesting a digital seafarer document

During the meetings with the shipping companies, several potential adjustments to the current process were identified. These reflect both operational needs and practical challenges associated with issuing digital seafarer documents:

- **Direct delivery to the seafarer**: When a shipping company applies for a new document, an additional field is needed to capture the email address of the seafarer who will receive the digital licenses. This ensures the possibility of direct sending the digital certificate to the user.
- **Activation status visibility:** shipping companies expressed a desire to verify whether a digital license has been activated on a seafarer's device. This is important for administrative insight and makes sure that the seafarers actually have access to the issued documents.
- **Alternative contact methods:** Some shipping companies propose to extend the email address with the possibility to use a phone number, since not all seafarers are actively using their email
- **Reissuance of licenses:** Seafarers must have the possibility to recover a digital license by themselves. This is needed because a seafarer might switch to another company and then still needs to be able to recover his/her license

These changes need to be adjusted in the issuance and recovery process of Kiwa Register in order to make the (re)issuance of digital seafarer documents scalable. The adjusted process flow will be created based on the final requirements of the ministry. A first internal version is already created by the product manager of Kiwa Register.

## 5.3 Deliverable 2: A solution for the shipping companies to remain compliant when digital seafarer documents are used

We first defined what compliance means for the shipping companies. It means that shipping companies need to be able so show certificates during a wide range of (desk) audits. To do so, shipping companies need to be able to show certificates to customers who request this. A solution for keeping the administration up to date is sought within the pilot.

As long as both physical and digital documents are issued, the shipping companies can rely on their current processes. To support the shipping companies during the transition to digital document, a choice has been made to place a QR-code on the physical documents for validation. Also, when the option for only digital documents comes in place, a choice can be made to make PDF files available for the shipping companies for a fixed time. This allows some of the benefits of digital certificates to be realized immediately while giving shipping companies time to fully switch to the digital solution.

Whenever possible, shipping companies can also prepare their ICT systems to retrieve copies of the digital certificates directly from the digital wallet. In this way the amount of manual work in issuing the certificates can be reduced.

## 5.4 Deliverable 3: Proposals for making digital seafarer documents accessible in a central place on a ship

As part of the pilot, several ways to make digital seafarer document accessible in a central location on board of a ship were explored. To gain insight, flag state Denmark was consulted regarding their experiences in this subject. Their intake was that storing and accessing certificates on board lies beyond the control of the issuing party and is primarily the responsibility of the shipping companies.

Although this perspective is acknowledged, potential solutions were further explored during this pilot to increase the acceptance of digital certificates. In order to achieve this, ship captains were asked during ship visits to identify logical locations within the existing onboard software where digital certificates could be integrated.

Two practical methods for retrieving certificates were tested:

- QR code scanning at boarding: Certificates can be retrieved by scanning a QR code when boarding the vessel, which proved to be effective[1].
- Onboard hardware device: Certificates can also be retrieved using a dedicated hardware device installed on the vessel, which also proved to be effective[2].

Both methods demonstrated technical feasibility. However, for full implementation shipping companies need to integrate these solutions in their operational systems.

## 5.5 Deliverable 4: Overview feedback received from enforcers

| | |
|---|---|
| Classification societies | Bureau Veritas: emphasized the importance of having a QR code that allows certificates to be verified quickly and reliably |
| | Lloyd's Register: Already used to verifying PDF files during audits. Uses the QR code on those documents to verify the certificate |
| Enforcer of Human Environment and Transport Inspectorate (ILT) | Positive about the development of digital certificates and recognized the opportunities this transition offers |
| | At the same time, the enforcer noted that the international acceptance of digital certificates will require a considerable transition period |

In addition, two participating seafarers got a Port State Control during the pilot. One in Spain and one in Germany. However, The inspectors refrained from checking the digital certificates during both inspections. One inspector was willing to cooperate but could not proceed because the Kiwa eWallet app, or any other ISO 18013-5 compliant app, was not available. The other inspector preferred to review the paper

[1] Tested with Ver.iD platform
[2] Tested a Tap2ID provided by Credence

documents directly. This underscores the importance of clear communication regarding the transition to digital certificates, as it increases recognition of digital documents and, consequently, their acceptance during inspections.

## 5.6 Other insights

Several additional observations can be retrieved from this pilot:

- A standardized data model is considered essential for broad implementation and recognition of digital certificates during inspections. In this context, the Netherlands has submitted a proposal to include the data model in the IMO Compendium.
- Feedback from interviewed seafarers highlighted that the usability of digital certificates increases significantly when all certificates are digitized, rather than only selected documents.
- Other ship certificates already appear to be digitalized and widely accepted, demonstrating both the feasibility and the advantages of transitioning to fully digital formats.

# 6 Way forward

In this chapter we propose what will be the next steps to introduce the digital certificates for seafarers to the market. There are two parts; legislation and the practical introduction to the market.

## 6.1 Legislative requirements and administration

Based on the results of both pilots, there is a clear picture on how the introduction of digital certificates for seafarers should look like. Based on this input, several actions in legislation and administrative tasks should be done in order to make the process feasible.

First of all, the legislation must include a description of the technology used as the basis for issuing digital certificates. Since RDW has already some experience with this, it makes sense to request input from their side to ensure proper implementation. Fundamentally, the legislation has already been adapted to allow for the issuance of digital certificates.

Next, Kiwa will request the Ministry to initiate a HUF assessment (or quotation process) upon continuation of the project. For instance, to enable the application for a digital certificate, Kiwa will need to make adjustments to the application processes within the Kiwa Register portal. The applicant must be able to choose between receiving a digital document, a physical document, or both within the portal. To enable this functionality, part of the portal must be programmed accordingly. The assessment and issuance system of Kiwa Register will also require modifications. In addition, a technical connection must be established between the digital issuance system of Kiwa DC and Kiwa Register. Finally, Kiwa must ensure that the industry becomes familiar with the available options by communicating and promoting the digital variant.

Based on the results of the HUF assessment, the tariff regulation must be extended to include a fee for issuing a digital certificate. As both physical and digital formats will be available concurrently, it is necessary to publish both tariffs in the Regeling Tarieven Transportsectoren.

## 6.2 Practical introduction to the market

The transition from physical to digital certificates in the maritime sector requires a carefully managed and phased approach. The goal is to provide stakeholders with sufficient time and support to adapt their systems and processes, while also encouraging broad acceptance of digital certification. A transition period of two years is proposed to facilitate this change.

Proposed is a phased implementation strategy as shown below.

Year 1: preparation and parallel issuance

- **Start of digital issuance:** Kiwa Register will begin issuing digital certificates as an addition to the existing physical documents.
- **Preparation time for shipping companies:** During this year, shipping companies will have the opportunity to prepare their internal IT systems for the implementation and integration of digital certificates.
- **Support and communication:** Active communication, guidance, and knowledge sharing will be provided to support the sector during this transition phase.

After year 1 a joint evaluation should take place, conducted by the Ministery of Infrastructure and Water Management (IenW), the Human Environment and Transport Inspectorate (ILT), The Royal Assocation of Netherlands Shipowners (KVNR), and Kiwa. The purpose of this evaluation is to assess whether the digital solution is functioning effectively and whether the sector is sufficiently prepared for a full digital transition.

Year 2: full digital transition

- **Digital becomes the standard:** if the evaluation is positive, the second year will mark the transition to digital-only issuance of certificates.
- **Provision of copies:** When digital becomes the standard, shipping companies must also have the option to obtain a copy of the certificate to remain compliant.

The approached phased approach has several benefits. First, the phased rollout gives stakeholders the necessary time to adjust to the new system. Second, offering digital certificates as an option first helps build trust and acceptance within the sector. Lastly, the evaluation moments allow for early identification and resolution of any issues that may arise.